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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,433	08/08/2001	Jun Koyama	12732-064001	9952

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EXAMINER

MENGISTU, AMARE

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,433

Applicant(s)

KOYAMA ET AL.

Examiner

Amare Mengistu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,7,10,11,33,37,47,48,53,54,70-78,80 and 81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5,7,10,11,33,37,47,48,53,54 and 70-78,80--81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. **Figures 13,14,26,34 and 35** should be designated by a legend such as --**Prior Art**-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 5,8,10,11,33,37,47,48,53,54,70-78,80-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McKnight [5,959,598]**.

As to claims 5,8,33,37,47,48,53,54,70-72,74-76 80,81 **McKnight**, discloses a liquid crystal display device comprising pixels, wherein each of said pixels has $n \times m$ memory circuits (see, fig.8 (805) "storage capacitor"), n gate signal lines (fig.8 (779)"gate wire"), n Tufts having gate electrodes, source region and a drain region (fig.8 (781) "TFT"), wherein each of said gate electrodes is connected to a corresponding one of said gate signal lines (fig.8 (781) gate electrodes connected to gate lines (779)).

McKnight did not expressly detailed having a D/A converter for converting n bit digital signals stored in said $n \times m$ memory circuits into analog signals. However, **McKnight** in fig.11 clearly teaches an alternative way of arranging an LCD pixels in which a each pixels having a D/A converter (fig.11 (1014)) for converting n bit digital signals stored in $n \times m$ memory circuits (fig.11 (1005) into analog signals (col.20, lines 29-39). It would have been obvious to one skill in the art at the time of the invention was made to have been motivated to have incorporate **McKnight** 's D/A into LCD pixels with TFT and a memory system arrangement since this will allow to convert the digital display data into an analog signal data which will drives the pixels to the desired voltage.

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As to claims 33,37,71,72 **McKnight** teaches a memory (fig.11 (1005)) and D/A converter (fig.11 (1014)) are arranged so as to overlap a source signal/gate line (fig.11 (778,779)).

As to claims 47,48,74,80 **McKnight**, also discloses LCD system having a memory circuit (fig.11 (1005)). **McKnight** did not expressly detailed that the memory circuit is formed on a glass substrate, however; it is inherent for LCD device to have a glass substrate. Therefore, it is obvious for **McKnight's** memory circuit to be formed on a glass substrate.

In regard to claims 53,54,75 and 81 **McKnight** teaches a LCD system, it is well known that LCD system is incorporated in any one of the electronic device such as mobile telephone, video camera, mobile computer, head mounted display, TV, and so on.

5. Claims 10,11,77 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McKnight** in view of **Sung et al [6,535,192]**.

- a. As to claims 10,11,77 and 78, **McKnight** discloses LCD device, but has failed to teach that the LCD device having a source signal line driving circuit including shift registers, first and second latch circuits and a switches. The patent of **Sung et al** is cited to teach that it is conventional for LCD source signal line driver (fig.4 (38)) to have a shift registers (fig. 4(28)), a first and second latches (fig.4 (22,24)) and a switches (fig.4 (34)).

- b. Therefore, it would have been obvious to one skill in the art at the time of the invention was made to have been motivated to incorporate the source signal driving circuit system of **Sung et al** into the LCD of **McKnight**, since this will allow the LCD device of **McKnight** to provide a source signal line driving circuit wherein is has a simplified circuit configuration so that is can be easily integrated onto LCD panel and the data line are driven by a sampled ramp system.

c.

Response to Arguments

6. Applicant's arguments with respect to claims 5,8,10,11,33,37,47,48,53,54,70-81 have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amare Mengistu whose telephone number is (703) 305-4880. The examiner can normally be reached on M-F, T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amare Mengistu
Primary Examiner
Art Unit 2673

A.m

July 19,2004